

What is claimed is:

1. A method of manufacturing a nonvolatile semiconductor storage device, comprising:

the first step of successively forming a first insulating film and a first polysilicon layer on a semiconductor substrate, and implanting nitrogen ions into a front surface of the first polysilicon layer;

the second step of patterning the first polysilicon layer and the first insulating film into the shape of a band;

the third step of thermally oxidizing the patterned band-shaped first polysilicon layer, thereby to form a second insulating film which is thicker at side surfaces of the first polysilicon layer than at the front surface thereof;

the fourth step of forming a second polysilicon layer on a front surface of the resulting semiconductor substrate formed with the second insulating film; and

the fifth step of performing patterning so as to form each storage element of the nonvolatile semiconductor storage device as includes the first insulating film, a floating gate electrode made of the first polysilicon layer, the second insulating film, and a control gate electrode made of the second polysilicon layer.

2. A method of manufacturing a nonvolatile semiconductor storage device, comprising:

the first step of successively forming a first

insulating film and a first polysilicon layer on a semiconductor substrate, and patterning the first polysilicon layer and the first insulating film into the shape of a band;

the second step of implanting nitrogen ions into a front surface of the first polysilicon layer;

the third step of thermally oxidizing the first polysilicon layer implanted with the nitrogen ions, thereby to form a second insulating film which is thicker at side surfaces of the first polysilicon layer than at the front surface thereof;

the fourth step of forming a second polysilicon layer on a front surface of the resulting semiconductor substrate formed with the second insulating film; and

the fifth step of performing patterning so as to form each storage element of the nonvolatile semiconductor storage device as includes the first insulating film, a floating gate electrode made of the first polysilicon layer, the second insulating film, and a control gate electrode made of the second polysilicon layer.

3. A method of manufacturing a nonvolatile semiconductor storage device, comprising:

the first step of successively forming a first insulating film, a first polysilicon layer and a silicon nitride film on a semiconductor substrate, and patterning the silicon nitride film, the first polysilicon layer and the first